Application Guidelines

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ECEiv
Environment of Care – Europe
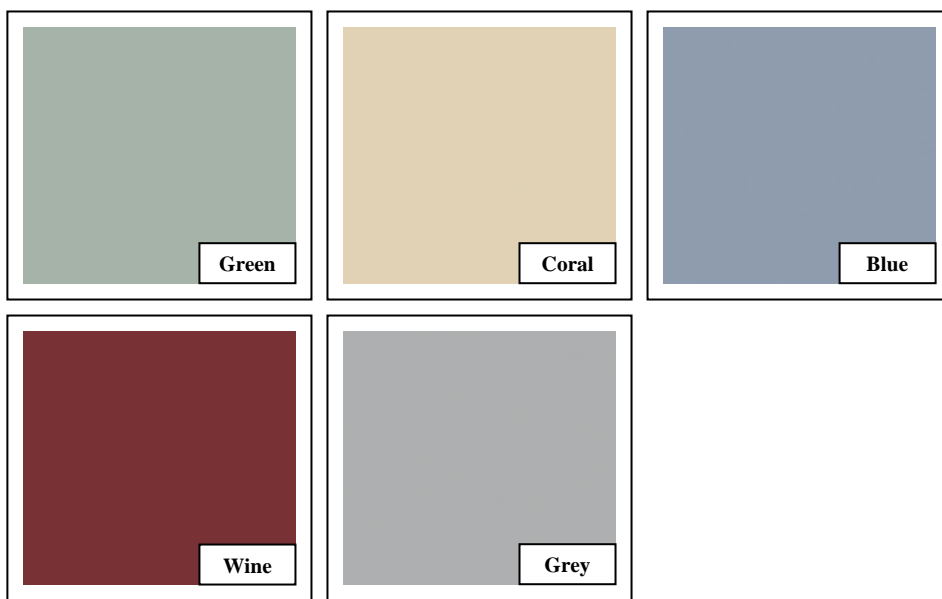Design & Implementation Guide

Concept:

The ECEiv Design Guide is based on a core neutral palette, enhanced with limited accent colors. The advantages of basing a standards program on a neutral core include the following:

✓   A neutral core provides a background palette removed from trends or whims

✓   A neutral core supports various aesthetic and technical directions imposed on it

✓   A neutral core provides a consistent and ordered environment of care

Limited accents, consisting of both warm and cool hues, shall be used in concert with the neutral core. In the past, designated colors were reserved for different types of facilities, and one color was encouraged to be used per floor. In the ECEiv Design Guide, more freedom and flexibility shall be given to the facilities to use the accent colors in a variety of ways. Single accents can be used per floor, or the other accents can be added for visual interest. Accent colors included the ECEiv Design Guide are Green, Coral, Blue, Wine and Grey.

Green	Coral	Blue
Wine	Grey	

While the accent colors appear to be clear and saturated, at least 85% of the built environment will be neutral in color. The remaining 5-15% of the interior finishes will either be subtle application of the accent colors, or more dramatic statements where dictated by function.

An example of accent colors used together is shown below.

Fig. 1

In Fig. 1, the blue accent is paired with green to create a more interesting environment and to enhance wayfinding.

Fig. 2

Fig. 2 illustrates a corridor in which the blue accent rubber flooring is used as a border.

Components of the Material Finish Solution

There are two classifications of materials in the ECEiv Design Guide – neutrals and accents. The neutral core consists of materials neutral in color, or – as in the case of paintable fiberglass wallcovering – neutral in effect. These comprise the main body of the overall finish palette. Enduring surfaces (such as plastic laminates, certain flooring materials, ceiling systems, etc.) will be neutral in color.
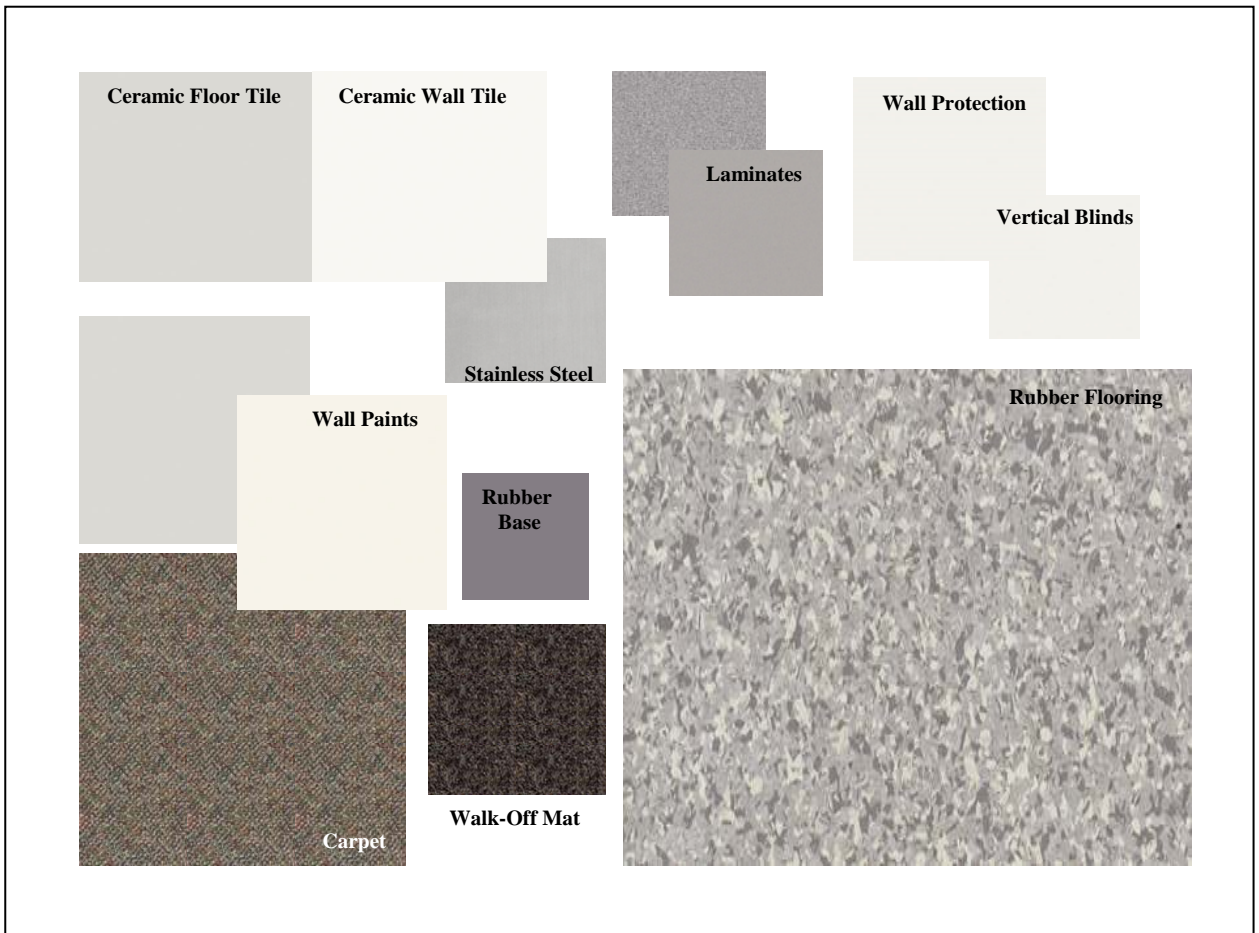
Neutral Elements:

Fig. 3

Fig. 3 illustrates the material finishes that comprise the core neutral palette.

Neutral Elements

Neutral elements are constant and are used as a backdrop to all accent colors in the ECEiv Design Guide.   Core neutral elements include the following:

Ceilings

• Gypsum wallboard or plaster (painted white)

• General purpose mineral fiber ceiling tile. The ECEiv Design Guide offers various face designs for tile, as well as square-cut or tegular edge options.

• Metal panel ceiling tile for clean and wet rooms, corridors or other architectural applications. Face designs include perforated for acoustic application and non-perforated for hygienic application.

Walls

• Paint for walls - Primary color selected for walls is a light taupe; Primary color selected for painted doors and trim is medium taupe.

• Paintable wallcovering features small scale simple weave pattern for smaller rooms and spaces, and medium scale simple weave pattern for larger rooms and spaces. A large scale patterned weave for architectural enhancement is also available.

• Ceramic wall tiles shall consist of a core neutral, which is an off-white color. Accent wall tiles are available for patterning or banding in toilet rooms.

Floors

• Carpet is a random heather pattern that works with all accent colors.

• Ceramic floor tiles are light grey in color, and shall be installed with dark grey grout to hide soiling.

• Walk-off mats are to be black or charcoal in color; grates are also acceptable and shall have clear anodized aluminum metal with black or dark grey inserts.

• Resilient seam-welded flooring is to be neutral in color; corridors generally have a border of an accent color. Resilient seam-welded flooring shall be coved to provide an integral base in most applications.

• Rubber base is a dark grey neutral color, and is generally used with carpet

• Wall base with a carpet insert (scheduled with carpet flooring) is used by some of the facilities

Miscellaneous

• The neutral window treatment includes vertical blinds that have free hang fabric vanes that are a light taupe – a near match to the neutral wall paint.

• Wall protection includes corner guards, handrails, crash rails and door protection. The basic core color of these elements is a putty hue, but accent inserts are available for handrails to visually enhance the space and provide wayfinding cues.

• Mechoshades have also been introduced as an option for window treatments. Both open mesh and a privacy mesh are included as a window treatment.

Accent Elements:

Accents are those elements that bring color to the space; accent colors of paint, wall protection, window treatments and carpet tiles are provided to create visual interest and assist in wayfinding. Accents are used on materials that are easily changed, or they provide a minor accent such as a handrail insert or flooring border. Accents are selected that will not "trend" out, but that will be sustained over several years.
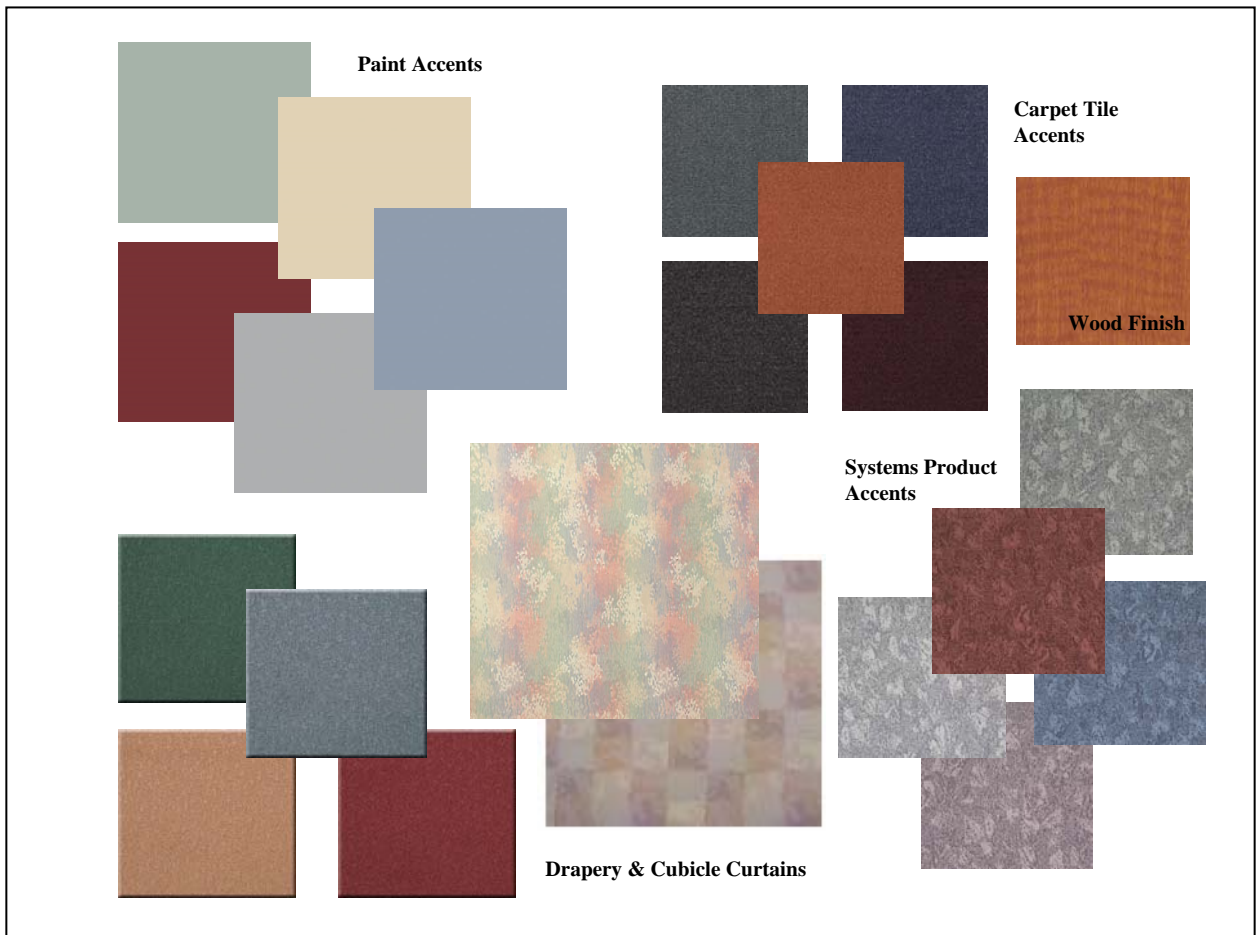
Fig. 4

Fig. 4 illustrates the material finishes that comprise the accent color palette.

Accent Elements

Accent elements are those that distinguish the various palettes from one another, and will constitute only 5-15% of the material composition of a space.

<u>*Walls*</u>

- Gypsum wallboard, plaster, and paintable wallcovering – Paint colors have been selected from the RAL Color System which shall complement the complete spectrum of products specified in the ECEiv Design Guide.

- Ceramic tile wall accents have been added to this Design Guide, and are to be used as an accent banding or in a minimal pattern. The "field" tile for ceramic walls is to be neutral.

<u>*Floors*</u>

- Carpet tile accents have been introduced in the ECEiv Design Guide. These are to be used in concert with the "field" carpet tile to create borders and other patterns.

- Resilient seam-welded flooring accent colors shown are critical to the success of the color palette, and it is strongly recommended that the products specified in the ECEiv Design Guide are strictly adhered to. Using other manufacturers' products may negatively affect the color palette established, and may limit color choices for the facilities.

<u>*Miscellaneous*</u>

- Draperies are considered an accent element, and are offered in all accent colors (with the exception of grey).

- Cubicle curtains are considered an accent element; in the ECEiv Design Guide, four different patterns with various levels of saturation are offered. All patterns match across the color spectrum and can be used with any and all of the accent colors.

- For Wall Protection, insert strips used in combination handrail/crashrails are the only elements that are recommended as a color accent (to enhance wayfinding).

Application of the Color Accents

Within the ECEiv Design Guide, the color accents used are intended to add visual interest, enhance décor and provide wayfinding cues throughout the healthcare environment. This is a deviation from earlier versions of the ECE Design Guides. Whereas former design guides limited the use of accent colors to facility size and type, the ECEiv Design Guide seeks to expand the color options to the facilities.

Color accents may be mixed, but care must be used to create a harmonious palette within the space. It is highly recommended that professional healthcare designers be consulted to provide technical expertise and design planning for large or complex projects. Basic applications of color is as follows:

Ceilings – white or off-white

Walls – light neutral/taupe on either gypsum, plaster or paintable fiberglass; color accents used with restraint

Door frames and wall trim – medium neutral; color accents can be used on door frames

Doors – stained or painted light or medium neutral

Floors – neutral resilient seam-welded flooring; large areas and corridors to have color accent borders; wall base to be neutral rubber base, or coved

Wall protection – mostly neutral with color accent banding for handrails & crashrails

Wood stains – to follow traditional wood stains (natural beech, natural cherry, mahogany) as cost allows

Window Treatments – vertical blinds are to be neutral in color, are the window treatment of choice, and can be used with draperies; Mechoshades are also available as an upgrade to vertical blinds

Cubicle Curtains – available in colorful patterned fabrics that complement all accent colors and can be used wherever cubicle curtains are required.

Application of the Material Finishes

The various materials that comprise the ECEiv Design Guide have been selected for performance and design compatibility across all products, manufacturers and colors in an effort to simplify the design process and to ensure the best results possible within an indeterminate system where products are selected through a competitive bid situation.

Factors that impact design decisions include:

1. *Architectural Prominence*

Priorities for material finish expense are generally assigned to spaces relative to their impact on the occupants.

Entry Lobbies and reception areas receive the most detailed treatment of any of the public spaces, and may be treated separately as they are the first contact between the facility and the user. A great first impression is desired in these public areas.

Corridors are designed with function and movement in mind, and are generally not given the same attention to detail as the entry lobbies. Since corridors are pathways rather than destinations, they serve as connectors to other vital spaces. Wayfinding cues are critical in these spaces, and need to be included in the design.

Offices, exam rooms, treatment rooms and other working spaces are designed around the functions performed within them. Most hospital functions require plentiful light, ease of sanitation, and a comfortable atmosphere. These rooms are not intended to be showpieces.

Fig. 5

Fig. 5 depicts typical exam space, clinic corridor and waiting space.

2. Budget and Life Cycle Costs

By comparing the finishes offered in the ECEiv Design Guide – both by the initial costs and maintenance/repair costs, the facility can determine which finish will suit their needs. Finishes selected for various areas must comply with the Appendix A of the DoD Medical Military Construction Program Facilities Design and Construction Criteria - Military Handbook 1191.

Life cycle costs include the disposition of materials removed from the facility. Products containing cadmium or cadmium compounds (used as stabilizers in a wide range of PVC products) are considered a "hazardous substance" in Germany (per Table C5.T4 Bans and Restrictions on Hazardous Substances, Final Governing Standards –Europe), and the cost of removal and disposal is expensive. At present, products containing PVC (but are cadmium-free) are included in the ECEiv, but facilities are encouraged to gradually phase these items out over the next three to five years. The ultimate objective of the ECEiv package is to present material finishes that are environmentally-friendly and are cadmium-free.

To illustrate the how budget and life cycle costs would impact material finish decisions, the Wall Finish and Flooring Finish comparison matrices depict the associated costs:

Wall Finish Comparison Matrix:

	Paint	**Paintable Fiberglass**	**Ceramic Wall Tile**
Initial Cost	$	$$	$$$$
Maintenance Cost per year	$	$$	$
Composition	Vinyl-acrylic resin or latex and extender pigments	Woven Glass textile yarns with binder	Matte or gloss glazed ceramic
Durability	Fair*	Good*	Excellent
Stain Resistance	Good	Good	Excellent
Replacement Schedule	1-5 years	1-5 paint 5-15 years fiberglass	50+ years

$ = Least Expensive
$$$$ = Most Expensive

•Requires wall protection

All maintenance requirements for wall finish shall be in accordance with manufacturer's recommendation.

Table 1

Flooring Finish Comparison Matrix:

	Carpet	Ceramic Floor Tile	Rubber Floor
Initial Cost	$$	$$$	$$$
Maintenance Cost per year	$$	$	$
Composition	Type 6,6 nylon Solution-dyed	Unglazed mosaic	Rubber compound
Durability	Fair	Excellent	Excellent
Hygienic Properties	Nylon to have anti-microbial protection	Inherently anti-microbial, inhibits growth microorganisms	No anti-microbial properties
Stain Resistance	Fair	Good	Good
Chemical Resistance:			
High pH Solutions	Good	Excellent	Good
Solvents	Good	Excellent	Good
Acids	Good	Excellent	Good
Replacement Schedule	5-10 years	50+ years	20-25 years
$ = Least Expensive $$$$ = Most Expensive All maintenance requirements for floor finish shall be in accordance with manufacturer's recommendation.			

Table 2

3. Criteria

The Military Handbook 1191 (MIL-HNDBK 1191) Appendix A indicates the preferred and recommended finishes for most spaces within a DoD healthcare facility. This criteria clearly defines the appropriate finishes throughout the healthcare environment, and deviation from this source is strongly discouraged.

The following Room Finish Legend is based on the MIL-HNDBK 1191 Appendix A recommendations:

Example of Room Finish Schedule:

Rm No.	Room Name	Floor	Base	Walls				Ceilings		Remarks
				North	East	South	West	Finish	Clg Ht	
145	Classroom	CPT-1	RB-1	PT-1b	PT-1b	PT-1b	PT-1b	ACT-1	9'-0"	7
146	Exam Room	RF-1	RF-1	PT-1b	PT-1b	PT-1b	PT-1b	ACT-1	9'-0"	7
147	Conference	CPT-1	RB-1	PT-3b	PT-1b	PT-1b	PT-1b	ACT-1	9'-0"	1, 7
148	Waiting Room	RF-1	RF-1	PWC-1/ PT-3b	PWC-1/ PT-1b	PWC-1/ PT-1b	PWC-1/ PT-1b	ACT-1	9'-0"	
149	Dining Room	CPT-1	RB-1	PT-3b	PT-1b	PT-1b	PT-1b	ACT-1	9'-0"	7
150	Staff Toilet	CFT-1	CWT-1	CWT-1/ CWT-3	CWT-1/ CWT-3	CWT-1/ CWT-3	CWT-1/ CWT-3	GYP/ PT-1e	9'-0"	3
151	Treatment	RF-1	RF-1	PT-1e	PT-1e	PT-1e	PT-1e	GYP/ PT-1e	9'-0"	2
152	Patient Room	RF-1	RF-3	PWC-1/ PT-3b	PT-1b	PT-1b	PT-1b	ACT-1	9'-0"	4, 7
153	Nurses Station	RF-1	RF-3	PT-1d	PT-1d	PT-1d	PT-1d	ACT-1	9'-0"	5
154	Office	RF-1	RF-1	PT-2b	PT-1b	PT-1b	PT-1b	ACT-1	9'-0"	
155	Vestibule	WM-1	RB-1	PWC-1/ PT-1b	PWC-1/ PT-1b	PWC-1/ PT-1b	PWC-1/ PT-1b	GYP/ PT-1e	9'-0"	
156	Main Lobby	RF-1	RF-2	PWC-1/ PT-2b & WP-1	PWC-1/ PT-1b & WP-1	PWC-1/ PT-1b & WP-1	PWC-1/ PT-1b & WP-1	ACT-1 & Gyp/ PT-1a	9'-0"	6, 7
157	Corridor	RF-1	RF-2	---	PWC-3/ PT-1b & WP-1	---	PWC-3/ PT-1b & WP-1	ACT-1	9'-0"	6
158	Dental Exam	RF-1	RF-1	PT-1e	PT-1e	PT-1e	PT-1e	ACT-1	9'-0"	

Remarks:

1. Accent carpet tile (CPT-2) shall be used as a border.
2. Metal casework (M-1) to have plastic laminate (PL-3) countertops.
3. Accent ceramic wall tile (CWT-3) shall create a solid band around room, 72" (180cm) A.F.F.
4. Cubicle Curtains (CC-1A) to be used in this space.
5. Systems product to be used to create workstations.
6. Handrails (WP-1) shall have WP-2 accent reveal.
7. Vertical blinds (VB-1) shall be used at perimeter windows.

Table 3

Legend to Room Finish Schedule:

ACT	Acoustical Ceiling Tile	PWC	Paintable Wallcovering
CC	Cubicle Curtain	RB	Rubber Wall Base
CFT	Ceramic Floor Tile	RF	Rubber Flooring
CPT	Carpet Tile	SS	Stainless Steel
CWT	Ceramic Wall Tile	SSM	Solid Surface Material
EP	Epoxy countertops	ST	Wood Stain
GYP	Gypsum Board	SV	Seamless Vinyl Flooring
M	Metal Casegoods	VB	Vertical Blinds
MCT	Metal Ceiling Tile	WM	Walk-Off Mat
PL	Plastic Laminate	WP	Wall Protection
PT	Paint	WS	Window Treatment

Paint and Stain Codes (based on 60 degree Gloss Meter ranges) require additional coding:

a   Flat (below 5)

b   Eggshell (5-20)

c   Satin (20-35)

d   Semi-Gloss (35-65)

e   Epoxy

Table 4

The various components of a finish palette are scheduled as follows:

Ceiling Materials:

General Use	ACT-1/PT-1a
Clinical Use	ACT-2/PT-1e
Public Corridors	MCT-1/PT-1a

Wall Materials:

Paint

General Use	PT-1b
Accent Walls	PT-2b, PT-3b, PT-4b, PT-5b and PT-6b
General Trim	PT-7d
Painted Doors	PT-7d

Paintable Wallcovering	PWC-1, PWC-2 or PWC-3
Door and Trim Stain	ST-1

Ceramic Wall Tile

General Use	CWT-1
Accent Banding	CWT-2, CWT-3, CWT-4, CWT-5 and CWT-6

Wall Protection

Corner Guards/Crash rails/ General Use Handrails	WP-1
Handrail Accent Reveals	WP-2, WP-3, WP-4, WP-5 and WP-6

Floor Materials:

Carpet

General Use	CPT-1
Accents/Borders	CPT-2, CPT-3, CPT-4, CPT-5 and CPT-6

Rubber Flooring

General Use	RF-1
Accents/Borders	RF-2, RF-3, RF-4, RF-5 and RF-6

Seamless Vinyl Flooring

General Use	SV-1
Accents/Borders	SV-2, SV-3, SV-4, SV-5 and SV-6
Ceramic Floor Tile	CFT-1
Walk-Off Mat	WM-1
Rubber Wall Base	RB-1

Cross-Reference of MIL-HDBK 1191, Appendix A to ECEiv Package

MIL-HDBK 1191, Appendix A		ECEiv Package	
Floor & Base Finishes			
Symbol	**Description**	**Symbol**	**Description**
AR	Acrylic Resin system with integral cove base	AR	Acrylic Resin system with integral cove base
CP	Carpet with resilient base	CPT	Carpet tile with rubber base or carpet base
CS	Concrete sealer, resilient base (no base on concrete or block walls)	CS	Concrete sealer, rubber base (no base on concrete or block walls)
CT	Ceramic tile with ceramic tile base	CFT	Ceramic floor tile with ceramic tile base
ER	Epoxy resin system with integral cove base	ER	Epoxy resin system with integral cove base
ET	Epoxy terrazzo with epoxy terrazzo base	ET	Epoxy terrazzo with epoxy terrazzo base
PF	Prefabricated	PF	Prefabricated
QT	Quarry tile with quarry tile base	QT	Quarry tile with quarry tile base
SP	Special (determined by designer)	SP	Special (determined by designer)
SV	Sheet Vinyl with integral cove base	RF or SV	Rubber flooring or Seamless Vinyl with integral cove base
VT	Vinyl composition tile with resilient base	VCT	Vinyl composition tile with rubber base
Wall Finish; **Represents the second & third characters in the Wall finish code**			
Symbol	**Description**	**Symbol**	**Description**
AF	Acoustical wall fabric	AF	Acoustical wall fabric
CS	Concrete sealer	CS	Concrete sealer
CT	Ceramic tile	CWT	Ceramic wall tile
LG	Liquid Glaze coat	PT	Epoxy paint (preferably water-based epoxy)
PF	Prefabricated	PF	Prefabricated
PT	Paint	PT	Paint
EL	Epoxy Coating, seamless, lead lined	EL	Epoxy Coating, seamless, lead lined
EP	Epoxy Coating, seamless	EP	Epoxy Coating, seamless
SP	Special	SP	Special
VF	Vinyl wall fabric	PWC	Paintable wallcovering
VP	Veneer plaster	VP	Veneer plaster

Table 5

Cross-Reference of MIL-HDBK 1191, Appendix A to ECEiv Package (continued)

MIL-HDBK 1191, Appendix A		ECEiv Package	
Ceiling Finish; Represents the second & third characters in the Ceiling finish code			
Symbol	**Description**	**Symbol**	**Description**
A	Acoustical Ceiling Tile	ACT	Acoustical Ceiling Tile
CS	Concrete sealer	CS	Concrete sealer
LG	Liquid Glaze Coat	PT	Epoxy paint (preferably water-based epoxy)
PF	Prefabricated	PF	Prefabricated
PT	Paint	PT	Paint
SP	Special	SP	Special
EP	Epoxy coating, seamless with coved corners	EP	Epoxy coating, seamless with coved corners
T1	Standard finish for Acoustical ceiling tile	ACT-1	Standard finish for Acoustical ceiling tile
T2	Waterproof finish for Acoustical ceiling tile	ACT-2	Waterproof finish for Acoustical ceiling tile

Table 6

Renderings provided by Leo A. Daly in the earlier iterations of the ECE Implementation Guide illustrate the materials used in typical spaces:

ACT-1 Acoustical Ceiling Tile

PWC-1 Paintable Wallcovering with PT-1b Paint

ST-1 Stain on Wood Doors

RF-1 Rubber Flooring with
RF-2 Rubber Flooring Accent border
And RF-2 coved integral base

Fig. 6
Fig. 6 shows a typical waiting room space.

ACT-1 Acoustical Ceiling Tile

PT-1e Paint on Gypsumboard

SSM-1 Solid Surface Material for Countertop

RF-1 Rubber Flooring with
RF-1 coved integral base

Fig. 7
Fig. 7 depicts a typical dental exam space.

Renderings provided by Leo A. Daly in the earlier iterations of the ECE Implementation Guide
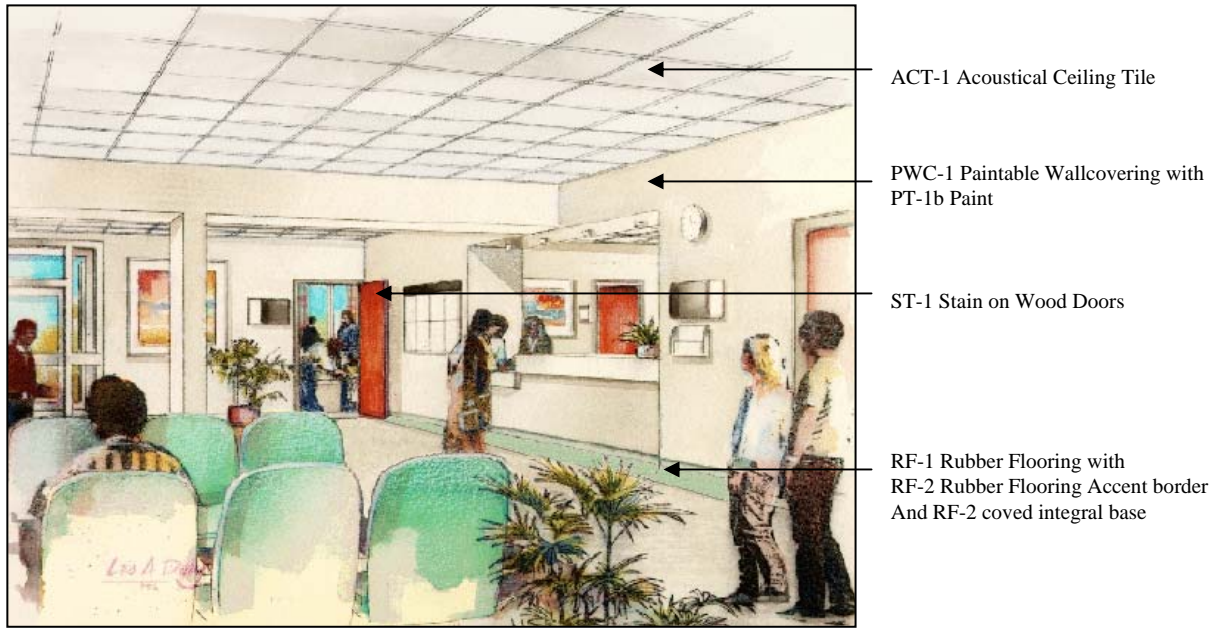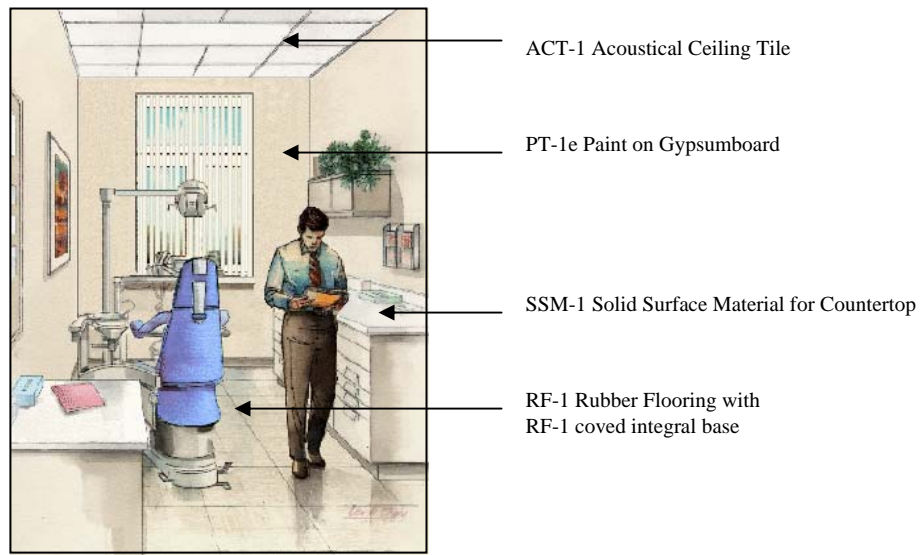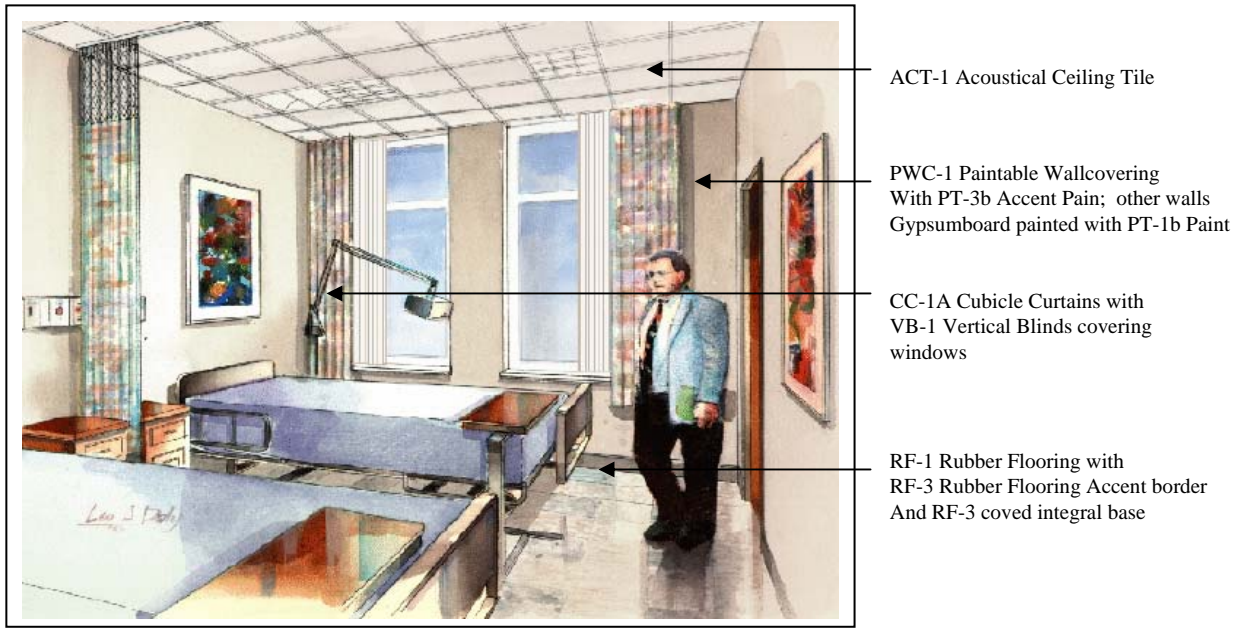illustrate the materials used in typical spaces:

ACT-1 Acoustical Ceiling Tile

PWC-1 Paintable Wallcovering
With PT-3b Accent Pain; other walls
Gypsumboard painted with PT-1b Paint

CC-1A Cubicle Curtains with
VB-1 Vertical Blinds covering
windows

RF-1 Rubber Flooring with
RF-3 Rubber Flooring Accent border
And RF-3 coved integral base

Fig. 8
Fig. 8 shows a typical patient room space.

ACT-1 Acoustical Ceiling Tile

PWC-3 Paintable Wallcovering
With PT-1b paint

PT-7c Paint on Door trim

WP-1 Handrail
Wall Protection

PWC-3 Paintable Wallcovering
With PT-3b paint

SV-1 Seamless Vinyl Flooring with
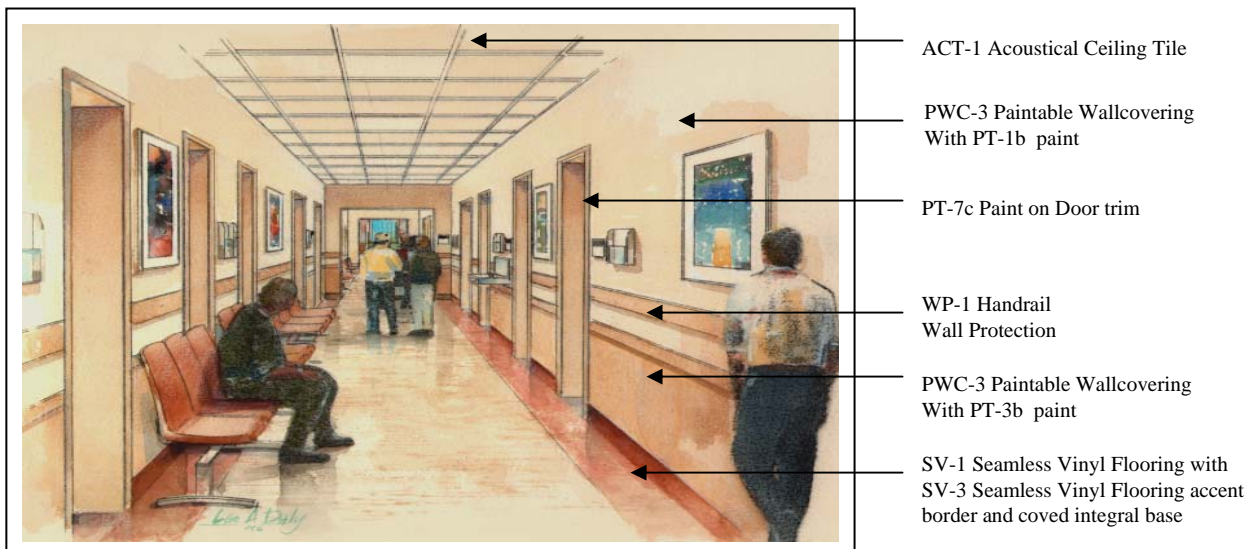SV-3 Seamless Vinyl Flooring accent
border and coved integral base

Fig. 9
Fig. 9 depicts a typical corridor.